Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): An optical wave-guide absorption cell, comprising:
a first wave-guide;

a holey wave-guide, a first terminus of said holey wave-guide coupled to a first terminus of said first wave-guide, said holey wave-guide comprising:

a core comprising voids filled with a known selective absorption medium;

[[and]]

a cladding region surrounding said core, and having a lower index of refraction than said core;

a fill hole extending radially to said voids in said core, from exterior to the holey wave-guide, at a location that is not at said first terminus of said holey wave-guide and is not at said second terminus of said holey wave-guide, said fill hole adapted to introduce said known selective absorption medium into said voids; and

a second wave-guide, wherein a first terminus of said second wave-guide is coupled to a second terminus of said holey wave-guide.

Claim 2 (Original): The optical wave-guide absorption cell according to Claim 1, wherein said first terminus of said holey wave-guide is coupled to said first terminus of said first wave-guide utilizing a fusion splice.

Claim 3 (Original): The optical wave-guide absorption cell according to Claim 1, wherein said first terminus of said holey wave-guide is coupled to said first terminus of said first wave-guide utilizing a light transmitting adhesive.

Claims 4 & 5 (Canceled)

Claim 6 (Original): The optical wave-guide absorption cell according to Claim 1, wherein:

said first wave-guide comprises a first fiber optic cable;

said holey wave-guide comprises a holey fiber optic cable; and

said second wave-guide comprises a second fiber optic cable.

Claim 7 (Currently Amended): A fiber optic absorption cell comprising a holey fiber optic cable adapted for propagating an optical signal, said holey fiber optic cable comprising:

a core defining voids;

a known selective absorption medium filling said voids;

a cladding region surrounding said core and having a lower index of refraction than said core; and

a fill hole extending radially to said voids, from exterior to the holey fiber optic cable, at a location that is not at a terminus of said holey fiber optic cable, said fill hole adapted to introduce said known selective absorption medium into said voids.

Claim 8 (Currently Amended): The fiber optic absorption cell according to Claim 7, wherein said holy fiber optic cable further comprises an evacuation hole extending radially to said voids, from exterior to the holey fiber optic cable, at a location that is not at a terminus of said holey fiber optic cable, said evacuation hole adapted to introduce said known selective absorption medium into said voids.

Claim 9 (Original): The fiber optic absorption cell according to Claim 7, further comprising a first fiber optic cable attached to a first terminus of said holey fiber optic cable, adapted to couple said optical signal from a light source to said holey fiber optic cable.

Claim 10 (Currently Amended): The fiber optic absorption cell according to Claim 8, further comprising a second fiber optic cable attached to a second terminus of said holey fiber optic cable, adapted to couple said optical signal from said holey fiber optic cable to a detector.

Claims 11-49 (Canceled)

Claim 50 (New): The optical wave-guide absorption cell according to Claim 1, wherein the known selective absorption medium is acetylene gas.

Claim 51 (New): The optical wave-guide absorption cell according to Claim 1, wherein the known selective absorption medium is hydrogen cyanide gas.

Claim 52 (New): The fiber optic absorption cell according to Claim 7, wherein the known selective absorption medium is acetylene gas.

Claim 53 (New): The fiber optic absorption cell according to Claim 7, wherein the known selective absorption medium is hydrogen cyanide gas.